



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

(B)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/747,923	12/29/2003	Jeffrey Dean Lindsay	18587	7066
23556	7590	04/17/2006	EXAMINER	
KIMBERLY-CLARK WORLDWIDE, INC. 401 NORTH LAKE STREET NEENAH, WI 54956			HILL, LAURA C	
			ART UNIT	PAPER NUMBER
			3761	

DATE MAILED: 04/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.



UNITED STATES DEPARTMENT OF COMMERCE

U.S. Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.

EXAMINER

ART UNIT PAPER

20060407

DATE MAILED:

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner for Patents

Office Action Summary	Application No.	Applicant(s)
	10/747,923 Examiner Laura C. Hill	LINDSAY ET AL. Art Unit 3761

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-69 is/are pending in the application.
 4a) Of the above claim(s) 52-68 is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-51 and 69 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 29 December 2003 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>6/14/04</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

- I. Claims 1-51 and 69, drawn to a disposable absorbent article, classified in class 604, subclass 387.
- II. Claims 52-62, drawn to a disposable absorbent article, classified in class 604, subclass 387.
- III. Claims 63-68, drawn to a method of fastening, classified in class 428, subclass 141.

The inventions are distinct, each from the other because of the following reasons:

Inventions II and I are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the disposable absorbent article does not require nanofabricated attachment means. The subcombination has separate utility such as a disposable absorbent article with discrete patches on the supporting substrate.

Inventions I and III are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different

Art Unit: 3761

process of using that product. See MPEP § 806.05(h). In the instant case the method of fastening a disposable absorbent article can be practiced with a hook and loop fastener or a gecko-like fastener that is not nanofabricated.

Inventions II and III are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product. See MPEP § 806.05(h). In the instant case the method of fastening a disposable absorbent article can be practiced with a hook and loop fastener or a gecko-like fastener that is not nanofabricated.

Because these inventions are independent or distinct for the reasons given above and the inventions require a different field of search (see MPEP § 808.02), restriction for examination purposes as indicated is proper.

During a telephone conversation with Bryan Rosiekja on 28 March 2006 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-51 and 69. Affirmation of this election must be made by applicant in replying to this Office action. Claims 52-68 are hereby withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim

Art Unit: 3761

remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Drawings

1. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because the drawings are unclear. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Nanofabricated Gecko-Like Fasteners with Adhesive Hairs for Disposable Absorbent Articles.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 3-5, 52, 60 and 63 are rejected under 35 U.S.C. 112, second paragraph.

The term "of about 3 or greater" in claim 3 is a relative term which renders the claim indefinite. The term "or greater" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Specifically, there is no upper limit for the average diameter range, which therefore renders the claim indefinite.

Art Unit: 3761

The term "of 10 nanoNewtons or greater" in claim 4 is a relative term which renders the claim indefinite. The term "or greater" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Specifically, there is no upper limit for the average adhesive force, which therefore renders the claim indefinite.

The term "greater than about 0.05 microns" in claims 5, 52, and 63 is a relative term which renders the claim indefinite. The term "greater than about" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Specifically, there is no upper limit for the diameter, which therefore renders the claim indefinite.

The term "less than 50 microns" in claim 60 is a relative term, which renders the claim indefinite. Specifically, there is no lower limit for the diameter, and therefore the diameter could be interpreted to be approximately zero.

35 USC 112, 6th Paragraph

4. "The USPTO must apply 35 U.S.C. 112, sixth paragraph in appropriate cases, and give claims their broadest reasonable interpretation, in light of and consistent with the written description of the invention in the application. See *Donaldson*, 16 F.3d at 1194, 29 USPQ2d at 1850. 35 U.S.C. 112, sixth paragraph "merely sets a limit on how broadly the PTO may construe means-plus-function language under the rubric of reasonable interpretation." It is noted that the 'nanofabricated attachment means for

Art Unit: 3761

'fastening' invokes the 'means for' language of 35 USC 112, 6th paragraph as per the three-prong analysis described in MPEP 2181.

Claim Language Interpretation

5. The term 'gecko-like fastener' in claims 5, 52 and 63 are interpreted to be 'an adhesive material comprising minute hairs rising from a substrate capable of conforming to and adhering to an opposing surface' as defined by Applicant's instant specification page 5, lines 20-24. Therefore, a 'gecko-like fastener' could include a loop material as in a conventional hook and loop fastener since the loop portion is a minute hair rising from one surface of a substrate.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
6. Claims 1-29, 40-42, 44-46, 49-51 and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Full et al. (WO 01/49776A3; herein 'Full') in view of Akeno et

Art Unit: 3761

al. (US 6,127,018; herein 'Akeno'). Regarding claims 1, 40-42, 50-51 and 69 Full discloses a fastener for clothes (page 1, lines 14-16 and page 16, lines 4-13) comprising nanofabricated attachment means (page 15, lines 1-2) comprising nanotube spatulae/adhesive hairs 136 (page 13, lines 29-30) disposed randomly and uniformly along substrate 130 to adhesively engage an opposing surface (figures 7, 9 and 10D) comprising a polystyrene surface (page 14, lines 16-18). Full does not expressly disclose a disposable absorbent article. Akeno discloses a skid-proof engaging element 2 molded on a front surface of a substrate sheet 1 suitable for use in a disposable absorbent article such as a diaper in which sloping heads 23 project each from necks 22 (column 3, lines 25-28 and column 4, lines 5-16 and figures 2-4). One would be motivated to modify the fastener of Full with the fastener on the disposable absorbent article of Akeno for a skid-proof element since both references disclose fasteners on wearing articles. Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to modify the fastener, thus providing a fastener on a disposable absorbent article.

Regarding claim 2 Full further inherently discloses an attachment means with a packing density range claimed. The discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not expressly disclose nor render the old composition patentably new to the discoverer.

Atlas Powder Co. v. Ireco Inc., 190F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). Thus the claiming of a new use, new function or unknown property which is

Art Unit: 3761

inherently present in the prior art does not expressly disclose not necessarily make the claim patentable. *In re Best*, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977).

Alternatively, Full does not expressly disclose the packing density values. Packing density is a result-effective variable since it is well known that it is a result of the number of hairs per total surface area. Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to modify Full/Akeno with the aforementioned packing density values, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch and Slaney*, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claims 3, 5, 7-8, 13 Full inherently discloses an average diameter value and a height to diameter ratio in the ranges claimed. The discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not expressly disclose not render the old composition patentably new to the discoverer. *Atlas Powder Co. v. Ireco Inc.*, 190F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). Thus the claiming of a new use, new function or unknown property which is inherently present in the prior art does not expressly disclose not necessarily make the claim patentable. *In re Best*, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977).

Alternatively, Full discloses the diameter of the shaft/hair is preferably 0.01-0.1 times the length/height of the shaft and thus the height-to diameter is 1/0.01-0.1 or in the range of 10-100 (page 4, lines 25-29). Full further discloses the height is 1-500 microns long (page 4, lines 25-26). Full does not expressly disclose the diameter value.

Art Unit: 3761

Diameter is a result-effective variable since it is a result of the type of material used for the hairs. Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to modify Full/Akeno with the diameter values, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch and Slaney*, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claim 4 Full further discloses each seta has 136,000 nanoNewton (page 6, lines 27-30) [Note that since 0.001 microNewton equals 1 nanoNewton, Full discloses each hair has a force of 136,000 nano-Newtons].

Regarding claims 6 Full further discloses terminating elements (figure 9).

Regarding claims 9-12 Full inherently discloses spacing values and ratios between the hairs. The discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not expressly disclose nor render the old composition patentably new to the discoverer.

Atlas Powder Co. v. Ireco Inc., 190F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). Thus the claiming of a new use, new function or unknown property which is inherently present in the prior art does not expressly disclose nor necessarily make the claim patentable. *In re Best*, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977).

Alternatively, Full does not expressly disclose the spacing values and ratio in the ranges claimed. The spacing between hairs is a result-effective variable since it is a result of the number of hairs on the substrate. Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to modify Full/Akeno with the

spacing values and ratios claimed, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch and Slaney*, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claims 14-16 Full further discloses at least one of the hairs is perpendicular to the substrate plane and is axisymmetric (figure 10D).

Regarding claim 17 Full further discloses the end portion of the hairs is flattened (page 6, lines 1-2 and figure 1E).

Regarding claims 18-19 Full inherently discloses the ratio of the width to the thickness of the flattened end and the flattened end surface area covered. The discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not expressly disclose nor render the old composition patentably new to the discoverer. *Atlas Powder Co. v. Ireco Inc.*, 190F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). Thus the claiming of a new use, new function or unknown property which is inherently present in the prior art does not expressly disclose nor necessarily make the claim patentable. *In re Best*, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977).

Alternatively, Full does not expressly disclose the ratio of the width to the thickness of the flattened end and the flattened end surface area covered values. The aforementioned ratios are result-effective variables since they are a result of the surface area of the flattened end and the entire hair. Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to modify Full/Akeno with the aforementioned values, since it has been held that discovering an optimum value of a

result effective variable involves only routine skill in the art. *In re Boesch and Slaney*, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claims 20-22 Full further discloses the hairs are hollow nanotubes 136 (page 13, lines 29-30 and page 14, lines 19-20).

Regarding claims 23 Full further discloses said hollow molecules are SiO_x layers on silicone substrates (page 15, lines 9-10).

Regarding claims 24-27 Full further discloses substrate 100 has well/aperture 106 (page 13, lines 8-9, figure 5C) and is liquid impervious since it is a semiconductor (page 13, lines 3-4).

Regarding claims 28-29 Full further discloses nitride and oxide layers are deposited on substrate 100 (page 13, lines 4-5).

Regarding claims 44-46 and 49 Full further discloses the fastener comprises a three-dimensional topography characterized by a series of alternating peaks and valleys, wherein groups of hairs 178 are disposed on said valleys, and wherein there are substantially hair-free regions between groups of hair (figure 10D).

7. Claims 1 and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Full et al. (WO 01/49776A3; herein 'Full') in view of Rosch et al. (US 4,585,450; herein 'Rosch'). Full does not expressly disclose a disposable absorbent article with the nano-fabricated fastener. Rosch discloses that in order to eliminate the need for pins or other mechanical fasteners to join the waist portions together, which would pose a danger to the infant, and so as to provide a complete garment that is ready for use without the need for additional fastening devices, disposable diapers have included pressure

sensitive-adhesive tabs as fastening means for securing the front and rear panels together about the waist of an infant (column 1, lines 25-33). One would be motivated to modify the fastener of Full with the fastener for use on disposable absorbent articles for improved attachment since both references disclose attachment means. Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to modify the fastener, thus providing a disposable absorbent article with fastener.

8. Claims 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Full et al. (WO 01/49776A3; herein 'Full') in view of Akeno et al. (US 6,127,018; herein 'Akeno'), and further in view of Schutt (US 2001/0023568; herein 'Schutt'). Full discloses a coating as discussed above with respect to claims 27-29. Full *does not expressly disclose* the coating is a titanium dioxide treated with a UV absorbing material. Schutt discloses coating compositions such as a titanium dioxide treated with a UV absorbing material for a durable surface finish (page 5, paragraph 0088 and abstract). One would be motivated to modify the coating of Full/Akeno with the titanium dioxide UV-absorbing material of Schutt for improved surface characteristics since the references disclose surface coatings. Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to modify the coating, thus providing a titanium dioxide UV-absorbing coating.

9. Claims 33-39 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Full et al. (WO 01/49776A3; herein 'Full') in view of Akeno et al. (US 6,127,018; herein 'Akeno'), and further in view of Magee et al. (US 2003/0100880; herein 'Magee'). Full/Akeno *do not expressly disclose* elastic regions. Magee discloses a diaper 20 may

also include such other features as are known in the art including leg cuffs, front and rear ear panels, waist cap features, elastics and the like to provide better fit, containment and aesthetic characteristics (page 3, paragraph 0039). Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to modify Full/Akeno with elastics.

10. Claims 47-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Full et al. (WO 01/49776A3; herein 'Full') in view of Akeno et al. (US 6,127,018; herein 'Akeno'), and further in view of Cronkite (US 4,299,223; herein 'Cronkite'), and further in view of Robertson et al. (US 5,279,604; herein 'Robertson'). Full/Akeno do not expressly disclose removable cover over the hairs for protection from contamination. It is well-known to those of ordinary skill in the art to employ a removable cover over a fastener to prevent contamination before use as supported by Cronkite and Robertson. Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to modify the fastening hairs of Full/Akeno, thus providing a removable cover.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Fearing et al. (US 6,872,439) is cited for showing a nanofabricated adhesive comprising a seta-like structure 10 including stalks/hairs 12 to engage a flexible polyester, polyurethane or polyimide supporting surface 16 with an adhesive force between about 60 and 2000 nano-Newton.

Art Unit: 3761

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura C. Hill whose telephone number is 571-272-7137. The examiner can normally be reached on Monday through Friday (off every other Friday).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tatyana Zalukaeva can be reached on 571-272-1115. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Laura C. Hill
Examiner
Art Unit 3761

TATYANA ZALUKAEVA
SUPERVISORY PRIMARY EXAMINER

LCH

LCH

Laura C. Hill